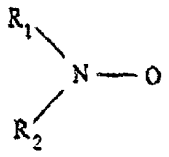
I Claim:

1. A process for depositing thin layers by chemical vapor deposition, which comprises:

adding to a gas stream including materials to be deposited an effective amount of nitroxyl radicals of the formula



the R_1 and R_2 being selected from the group consisting of alkyl, alkenyl, alkynyl, acyl, and aryl radicals.

2. The process according to claim 1, wherein R_1 and R_2 are identical.

3. The process according to claim 1, wherein R_1 and R_2 are different.

4. The process according to claim 1, which further comprises including heteroatoms in the group consisting of alkyl, alkenyl, alkynyl, acyl, and aryl radicals.

5. The process according to claim 1, which further comprises not including heteroatoms in the group consisting of alkyl, alkenyl, alkynyl, acyl, and aryl radicals.

6. The process according to claim 1, which further comprises:

forming from R_1 and R_2 a structure $-CR_3R_4-CR_5R_6-CR_7R_8-CR_9R_{10}-CR_{11}R_{12}-$;

wherein R_3, R_4, R_5, R_6, R_7, R_8, R_9, R_{10}, R_{11}, R_{12} are selected from the group consisting of alkyl, alkenyl, alkynyl, acyl, and aryl radicals.

7. The process according to claim 6, wherein R_3, R_4, R_5, R_6, R_7, R_8, R_9, R_{10}, R_{11}, R_{12} are identical.

8. The process according to claim 6, wherein R_3, R_4, R_5, R_6, R_7, R_8, R_9, R_{10}, R_{11}, R_{12} are different.

9. The process according to claim 6, which further comprises including heteroatoms in the group consisting of alkyl, alkenyl, alkynyl, acyl, and aryl radicals.

10. The process according to claim 6, which further comprises not including heteroatoms in the group consisting of alkyl, alkenyl, alkynyl, acyl, and aryl radicals.

11. The process according to claim 1, which further comprises forming from R_1 and R_2 a structure $-CR_3R_4-CR_5R_6-CR_7R_8-CR_9R_{10}-CR_{11}R_{12}-$; wherein R_3, R_4, R_5, R_6, R_7, R_8, R_9, R_{10}, R_{11}, R_{12} are

selected from the group consisting of hydrogen, methyl, and ethyl.

12. The process according to claim 11, wherein R_3, R_4, R_5, R_6, R_7, R_8, R_9, R_{10}, R_{11}, R_{12} are identical.

13. The process according to claim 11, wherein R_3, R_4, R_5, R_6, R_7, R_8, R_9, R_{10}, R_{11}, R_{12}, are different.

14. The process according to claim 1, which further comprises forming from R_1 and R_2 a structure $-CR_3R_4-CR_5R_6-CR_7R_8-CR_9R_{10}-CR_{11}R_{12}-$; wherein R_3, R_4, R_{11}, R_{12} are each methyl, and R_5, R_6, R_7, R_8, R_9, and R_{10} are each hydrogen.

15. The process according to claim 1, wherein at least one of the materials to be deposited is a dielectric.

16. The process according to claim 15, wherein the dielectric to be deposited is selected from the group consisting of silicon dioxide, silicon nitride, aluminum oxide, tantalum oxide, and a mixture thereof.

17. The process according to claim 1, wherein at least one of the materials to be deposited is a metal alloy.

18. The process according to claim 17, wherein the metal alloy is a mixture of metals selected from the group consisting of tungsten, cobalt, and tantalum.

19. The process according to claim 1, wherein at least one of the materials to be deposited is a metal.

20. The process according to claim 18, wherein the metal is selected from the group consisting of tungsten, cobalt, and tantalum.

21. The process according to claim 1, wherein at least one of the materials to be deposited is a metal-containing compound.

22. The process according to claim 22, wherein said metal-containing compound is selected from the group consisting of a metal nitride and a metal silicide.

23. The process according to claim 21, wherein said metal containing compound is selected from the group consisting of WN, WSi_x, CoSi, TaSi, and a mixture thereof.

24. The process according to claim 1, wherein only one chemical compound apart from the added nitroxyl radicals is present in the gas stream including the materials to be deposited.

25. The process according to claim 1, which further comprises heating to a temperature between 100°C and 500°C.

26. The process as claimed in claim 1, which further comprises heating to a temperature between 150°C and 250°C.

27. The process according to claim 1, which further comprises adding the nitroxyl radicals to the gas mixture in a concentration of less than five percent (< 5%).

28. The process according to claim 27, which further comprises adding the nitroxyl radicals to the gas mixture in a concentration of less than one percent (< 1%).

29. The process according to claim 1, which further comprises adding the nitroxyl radicals the gas mixture only at the beginning of the deposition process.

30. The process according to claim 29, which further comprises adding the nitroxyl radicals to the gas mixture only for a period from five to twenty seconds (5-20 sec.) at the beginning of the deposition process.

31. The process according to claim 1, which further comprises alternatively adding the nitroxyl radicals to the gas mixture

for a particular time and then not adding the nitroxyl radicals for a particular time during the deposition process.

32. The process according to claim 1, which further comprises continuously adding the nitroxyl radicals to the gas mixture during the entire deposition process.